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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/996,672 | 11/30/2001 | Nobuhiko Ogura | Q67395 | 4170 |

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| EXAMINER |
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GAGLIARDI, ALBERT J

| ART UNIT | PAPER NUMBER |
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2878

DATE MAILED: 04/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------|-----------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/996,672 | OGURA, NOBUHIKO | |
| | Examiner | Art Unit | |
| | Albert J. Gagliardi | 2878 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2001.
 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-41 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☒ The drawing(s) filed on 30 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 5 and 7-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "the laser". There is insufficient antecedent basis for this limitation in the claim. The examiner notes that there is no antecedent basis in claim 1, from which claim 5 depends for the source to be a laser. Laser is first mentioned in claim 4.

Claims 7-8 recite the limitation "the stimulating ray emitted from an LERD. There is insufficient antecedent basis for this limitation in the claim. The examiner notes that there is no antecedent basis in claim 1, from which claim 7 depends for the source to be an LED. An LED is first mentioned in claim 6.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 9-23 and 29-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogura (US 5,900,640) in view of Dandliker *et al.* (US 4,877,965) and Hosoi *et al.* (US 4,880,987).

Regarding claim 1, *Ogura* discloses (Fig. 1) an image reading apparatus and method for producing image data by irradiating an image carrier such as a any of, for example, a stimuable phosphor sheet, an autoradiography sheet, or a fluorescently labeled sheet (col. 4, lines 14-23) wherein the fluorescently labeled sheet is an image carrier (10) including two-dimensionally distributed spots of a labeling substance (col. 12, lines 4-8) with a stimulating ray (4) to excite the labeling substance and photoelectrically detecting (20, for example) light released from the labeling substance (col. 13, lines 42-47).

Ogura does not disclose a step of irradiating the image carrier with a line beam, or detecting light released from the labeling substance after the completion of irradiation with the stimulating ray.

Regarding the beam being a line beam, those skilled in the art appreciate that the it is well known in the art and considered as a functionally equivalent design choice depending on the needs of the particular application to perform stimulation and detection of luminescent light emitted from an image carrier on a single, per pixel basis or in a parallel basis using line source and line detector. *Hosoi* for example discloses (Fig. 1) the use of a line beam stimulating source (2) and further teaches the functional equivalence of any of a variety of stimulation arrangements including both stimulating ray beams and line beams (col. 6, lines 32-49). Therefore, it would have been obvious to a person of ordinary skill in the art to modify the method suggested by

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Ogura so as to utilize a line beam stimulating ray in view of well-known functional equivalence thereof and the desire to optimize the system according to the particular needs of the application.

Regarding the step of detecting the light after completion of the irradiating step, it is noted that while *Ogura* does not specifically identify the timing of the stimulating and detecting steps, *Dandliker* discloses a method of reading fluorescent light wherein the step of detecting the light occurs after completion of the irradiating step (col. 3, lines 50-57). *Dandliker* teaches that such an arrangement allows for enhancing the sensing of particular fluorescence and reducing the noise effects of background light (col. 4, lines 6-10 and col. 2, lines 18-21). Therefore it would have been obvious to a person of ordinary skill in the art to modify the method suggested by *Ogura* so as to perform the step of detecting the light after completion of the irradiating step in order to enhance the sensing of the fluorescent light.

Regarding claim 2, *Hosoi* discloses that when using a line source, the image carrier (1) is intermittently moved relative to the line beam (2) and the stimulation and detection step is performed each time the image carrier is moved (col. 5, lines 40-48).

Regarding claim 3, *Ogura* discloses that the stimulation and detection step is performed two or more times (see generally col. 16, line 20 to col. 18, line 52).

Regarding claims 9, 10, 12, and 14, *Hosoi* discloses that the light is detected by a solid state imaging device (3A), which may be any of a CCD, a photodiode or a MOS device (col. 4, lines 4-9).

Regarding claims 11, 13, and 15, although not specifically disclosed by *Ogura*, *Dandliker*, and *Hosoi*, cooling of the solid state photodetectors is well known in order to reduce thermal noise and improve the signal to noise ratio of the detection device and would have been

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a matte of routine design depending on the needs of the application and the desire to produce high quality images.

Regarding claim 16, *Ogura* discloses that the labeling substance is a fluorescent substance (col. 12, lines 4-8).

Regarding claim 17-20, *Ogura* discloses that the image carrier is may be a gel support, a stimuable phosphor sheet including a radioactive labeling substance, and a transfer support or the like (col. 11, line 65 to col. 12, line 8; and col. 12, lines 55-65). Other functionally equivalent fluorescent label carriers and transfers supports such as membrane filters and micro-array are well known and considered as obvious design choice within the skill of a person of ordinary skill in the art depending on the needs of the application and the well known use of such supports for carrying fluorescent substances.

Regarding claims 21-23, 29-35 and 37-41, the apparatus as recited according to the claims is suggested by the method suggested by *Ogura*, *Dandliker* and *Hosoi* as applied to claims 1-3 and 9-20 above and is rejected accordingly.

Regarding claim 36, *Ogura* discloses the use of a cut filter (23a, for example) in the path of the light released from the labeling substance for cutting at least a light component of the stimulating ray.

6. Claims 4, 6, 8, 24, 26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Ogura*, *Dandliker* and *Hosoi* as applied above, and further in view of *Kawajiri et al.* (US 4,922,103).

Regarding claims 4 and 6, although *Hosoi* does not specifically disclose the type of line source, those skilled in the art appreciate that a variety of functionally equivalent types of

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sources are well known in the art including an array of light emitting diodes or lasers (see for example *Kawajiri* at col. 4, lines 21-28). As such, it would have been obvious to a person of ordinary skill in the art to modify the method as suggested above so as to utilize any of the well known types of sources including an array of laser diode sources in view of well known functional equivalence thereof and the desire to optimize the system according to the particular needs of the application.

Regarding claim 8, as best understood, *Kawajiri* discloses that the stimulating ray source may be shaped by a slit (2A).

Regarding claims 24, 26 and 28, the apparatus as recited according to the claims is suggested by the method suggested by *Ogura*, *Dandliker*, *Hosoi* and *Kawajiri* as applied to claims 4, 6 and 8 above and is rejected accordingly.

7. Claims 5, 7, 25 and 27, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over *Ogura*, *Dandliker*, *Hosoi* and *Kawajiri* as applied above and further in view of *Mueller et al.* (US 6,373,074).

Regarding claims 5 and 7, although *Ogura*, *Dandliker*, and *Hosoi* as applied above do not suggests the use of a shaping lens, *Mueller* discloses (Fig. 4) a line source for stimulating an image carrier wherein the laser beam emitted from a laser stimulating source (20) is shaped using a lens (30) to produce a line beam of stimulating rays. *Mueller* shows that such an arrangement allows for the use of fewer laser diodes or LEDs (compare Figs. 2 and 4) and also teaches that the arrangement allows for increased reliability of the source in the event of a malfunction (col. 8, lines 51-57).

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Regarding claims 25 and 27, the apparatus as recited according to the claims is suggested by the method suggested by *Ogura, Dandliker, Hosoi, Kawajiri* and *Mueller* as applied to claims 5 and 7 above and is rejected accordingly.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert J. Gagliardi whose telephone number is (571) 272-2436. The examiner can normally be reached on Monday thru Friday from 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Albert J. Gagliardi
Primary Examiner
Art Unit 2878

AJG